

## ABSTRACT

An electrical connection system for two printed circuit boards mounted on opposite sides of a mid-plane printed circuit board at angles to each other. The system includes two connector printed circuit boards, each containing pairs of electrical connections. The connector boards are mounted on opposite faces of a mid-plane printed circuit board, which contains pairs of overlaying via holes on each of its faces. The via holes are positioned according to one of two schemes. In the first scheme, the via holes are positioned along an axis perpendicular to an axis that bisects the angle of misalignment of the connector boards, and the via holes are equidistant from a point on the axis that bisects the angle of misalignment of the connector boards. In the second scheme, the via holes are positioned along an axis that bisects the angle of misalignment of the connector boards, and the via holes are equidistant from each of the electrical connections. The electrical connections on each of the connector boards are connected through electrical paths. Each electrical path consists of a top electrically conductive surface mount pad connecting the electrical connection on the top connector board to a via hole on the top face of the mid-plane board, a mid-plane electrical trace through the mid-plane board connecting a via hole on the top surface of the mid-plane board to the via hole directly beneath it on the bottom face of the mid-plane board, and a bottom electrically conductive surface mount pad connecting the via hole on the bottom face of the mid-plane board to the electrical connection on the bottom connector board.